DOCUMENT RESUME

ED 378 151 SP 035 669

AUTHOR Copenhaver, Ron W.
TITLE Integrating Museum Resources, Human and Otherwise, into Instruction.
PUB DATE 15 Feb 94
NOTE 32p.; Paper presented at the Annual Meeting of the Association of Teacher Educators (Atlanta, GA, February 12-15, 1994).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Discovery Learning; *Education Courses; Elementary Secondary Education; *Experiential Learning; Graduate Study; Higher Education; Instructional Development; Integrated Activities; Integrated Curriculum; Material Development; *Museums; Problem Solving; Teacher Education; *Teaching Methods
IDENTIFIERS Creative Problem Solving; Museum Educators; *Southern Illinois University Carbondale

ABSTRACT

As part of the education reform movement seeking change in both teaching and teacher education, a graduate teacher education course at Southern Illinois University at Carbondale, "Integrating Museum Resources into Classroom Instruction," offers teachers a chance to engage in problem solving for their own students through varied experiential and discovery learning activities. In particular the course tries to: stimulate teachers to suggest the potential of museum resources and instructional strategies as a means for addressing individual student needs; identify school-museum collaboration strategies; share ideas and plans; and reflect upon the implications for teacher education. Teachers work individually and in groups to analyze current educational theories, evaluate potential resources, and create and share instructional materials and strategies for integrating those resources into their curricula. Teachers working in the course use the 5-step "Creative Problem Solving" process to tackle improvements in their classroom. The five steps are fact finding, idea finding, problem finding, solution finding, and acceptance finding. The solution finding stage leads to course products such as the Museum Idea Log, Learning Activity, and Exhibit Plan and Related Integrated Learning Activity. During the acceptance finding stage participants evaluate the course. Teachers who have taken the course reported that they planned to increase and change their use of museum resources in the coming year. Four appendixes provide: a workshop outline on integrating museum resources into instruction, a sample museum log entry, a museum resource--Ingram's Log Cabin Village, and a field-trip outline. (Contains 63 references.) (JB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 378 151

INTEGRATING MUSEUM RESOURCES, HUMAN AND OTHERWISE, INTO INSTRUCTION

Presented by

Ron W. Copenhaver
Associate Professor
Department of Curriculum & Instruction
Southern Illinois University at Carbondale

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
R Copenhaver
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it
☐ Minor changes have been made to improve reproduction quality
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

at the

Association of Teacher Educators
1994 Annual Meeting
Atlanta, Georgia
February 15, 1994

BEST COPY AVAILABLE

SE035669

Teacher educators involved in teaching undergraduate and graduate methods courses, supervising preservice field experiences and student teaching are constantly striving to help teachers increase their teaching repertories. Joyce and Weil (1986) and Goodlad (1990) conclude that teachers should learn and be able to use a variety of instructional methods. Achieving such a goal would help teachers motivate pupils and address their learning style needs (Cross, 1976, Hunt, 1974 & Letteri 1977).

The difficulty of achieving the above goal is evident when actual teaching practices of teachers are considered as did Hoetker (1969) and Goodlad (1984) when they each found that the primary (modal) instructional strategy being used in classrooms was some form of recitation. Cuban (1982) concluded that this has been the basic pattern of instruction since the turn of the century. Most recently, Copenhaver and Ligon (1991) found that preservice teachers preferred discovery instructional strategies when learning and planned to use such strategies mostly when student teaching; however, they used didactic strategies mostly as did the majority of their cooperating teachers.

One problem may be that preservice teachers focus on what their teacher educators do rather than what they say. Stover (1990) found that future teachers often complain that their instructors do not model the strategies they tell them to use. She cited Reece, Berns, and Heath's (1986) successful use of behavior modeling to increase teacher competence in vocational education and asserted, "Their positive results suggest to teacher educators' in other disciplines that instructional effectiveness diminishes when there is a lack of congruency between course content and behaviors displayed by the teacher educator " (p.36)

Two other related problems in teacher education are that preservice teachers often have difficulty understanding several of the ideas taught outside the context to which they refer (Sykes, 1992) and that pedagogical knowledge is taught in superficial ways as isolated bits and pieces (Carpenter, 1988). Cannella (1992, p.5) concluded, "The individual, the culture, past constructions and experiences, and the situational context are interdependent nonlinear elements that impact learning."

Doll (1993) believes a new post-modern sense of educational order will emerge in all schooling that will affect the relationship of teachers and students and the concept of curriculum. He believes that the current educational system has imposed a linear, sequenced and quantifiable ordering system on education that is based on the modern industrial model, but suggests that a post-modern approach could generate a more complex, pluralistic, and unpredictable system or network.

Carpenter's (1988) conception of teaching as problem solving may be a step in the direction of a constructivist/post-modern view of teaching. He asserted that teachers make decisions to solve problems of instruction, rather than simply engaging in classroom behaviors that may be prescribed for teaching. And,"... one of the advantages of learning in problem solving contexts is that students acquire information about the conditions under which it is useful to know various concepts and facts" (Barnsford, Sherwood, & Hasselbring, 1988 as cited by The Cognition and Technology Group at Vanderbilt 1990, p. 3). Furthermore conceptual change theory (Posner et.al., 1982) prescribes that in order for preservice and inservice teachers to adopt new beliefs and practices they must be confronted with alternative models sufficiently vivid to challenge prior experience, and those models must be perceived as plausible alternatives.

Purpose

The purpose of this presentation/paper is to describe one on-going attempt to develop such a model and to reflect upon its implications for teacher education. That model is an instructional process and is intended to be a catalyst: ***Integrating Museum Resources into Classroom Instruction***, a Southern Illinois University at Carbondale graduate course developed and taught by the presenter. In light of Goodlad's (1990) contention that genuine schooling reform will only take place when teacher education and schools change together, this course was designed and is repeatedly being revised to address the above problems in teacher education.

This presentation/paper will focus on the potential and the wide variety of museum resources and instructional strategies available for integrated active discovery, problem solving, constructivist and, possibly, post-modern learning experiences. More specifically, the purpose of this presentation/paper is four-fold:

(1) to suggest the potential of museum resources and instructional strategies as a means for addressing individual student needs,

(2) to identify school-museum collaboration strategies for using those museum resources and instructional strategies,

(3) to share teachers' ideas and plans for integrating those resources and strategies into classroom instruction/school curricula, and

(4) to reflect upon the implications for teacher education.

Course Design

This course is designed to give teachers an opportunity to engage in problem solving for their own students (classroom/school) through varied experiential and discovery learning activities. They are also encouraged

individually and in cooperative groups to analyze current educational theories, evaluate potential resources, and create and share instructional materials and strategies for integrating those resources into their classroom/school curricula.

Teachers are introduced to a problem solving process, Parnes' (1975) "Creative Problem Solving," and asked to consider what needs to be improved in their school/classroom learning environments when teaching their school/classroom curriculum. Parnes' "Creative Problem Solving" steps include:

1) Fact Finding
2) Idea Finding
3) Problem Finding
4) Solution Finding
5) Acceptance Finding

The "Fact Finding" stage focuses on student learning styles and perceptions (Gregorc, 1978; Copenhaver, 1979; Letteri, 1977; Gardner, 1985,; Kohl and Andrews, 1979; Jensen, 1982); various instructional strategies, such as Authentic Learning (articles noted below) and Cooperative Learning; schools and accountability (Wigginton, 1992), including Illinois State Board of Education Goals and local objectives; and finally, the definitions, history and potential educational uses of museum resources (Burcaw, 1975; Harrison, 1954; Lehman and Igoe, 1981).

Teachers started fact finding by analyzing two dimensions of their own styles using Gregorc's "Transaction Ability Inventory" and discussing the implications of their findings. Drucker's (1968) conclusion, (Children) can learn if use is made of their own rhythm, their own pacing, and their

own attention span, helped then to focus teachers' further fact finding about instruction, schools, and the use of museum resources.

A second area of fact finding considers instructional strategies. In small groups teachers read articles about "authentic learning" (Williams and Reynolds, 1993; LaRocca, 1993; Doane, 1993), "critical thinking skills development" (Paul, 1989; Bloom, 1956), and share their conclusions and local adaptation ideas. They listen to the Wigginton audio tape and reflect about how they might adapt his suggestions for addressing state goals and objectives through authentic learning experiences. Finally, before moving to the problem finding stage, a brief review of the history of museums is presented along with how their "public education" purpose evolved.

"Problem Finding" focuses on those problems encountered when educators use museum resources for instructional purposes. Clearly a trip to the museum as a holiday from school is an extremely limited experience and a waste of enormous learning potential. It is simply a serendipitous learning experience which is disconnected and seen as unrelated to the school curriculum. If planned appropriately, it can be an enriching and even an integral part of school curricula. Museums used as multiple entry learning resources offer opportunities (Gardner, 1991) to integrate subject areas, develop authentic learning experiences, and encourage students to use their own learning styles and profiles of intelligence.

Howard Gardner (1991, p. 202) concludes that while schools have become increasingly anachronistic, " museums have retained the potential to engage students, to teach them, to stimulate their understanding, and, most important, to help them assume responsibility for their own future learning." Gardner makes a case for schools drawing upon the strengths of children's museum environments.

Teachers are asked what problems they have encountered when using museum resources. The historic problems of teachers using museum resources are presented (Burcaw; Newsom, 1978; Zetterberg, 1968) along with presentations/readings/reflection sessions on research findings on museum resources usage, especially field trips, (Finson and Enochs, 1987; Koran and Baker, 1979; Museum Education Roundtable, 1986) and potential benefits (Lehman and Igoe, 1981; Speltz and Shaugnessy, 1990; Gardner 1991), and evaluation of student learning, (Wigginton; Bloom; authentic learning articles noted above).

Through a consensus building process, the class then states the overriding, manageable problem that they will address during the course. For example, the problem stated by a recent class was: (to) "Generate interest through connecting school curriculum and museum resources: providing authentic learning experiences."

The "Idea Finding" stage begins with a discussion about successful experiences teachers have had when using museum resources , a review of local curricular needs and state goal expectations, and reflections about how museums can address student style differences (Linder, 1987; Gardner, 1991) through authentic, constructivist and post-modern learning experiences. Using Blooms' Cognitive Taxonomy (1956), teachers identify the highest level of thinking required during the learning activities they currently use in their respective classrooms and brainstorm together to develop alternative activities that will bump thinking to higher levels. Strategies for integrating the use of museum resources into the curricula are discussed including recommendations in the literature (Harrison; Newsom), as well as evaluation strategies suggested by Wigginton and advocates of authentic learning and portfolio evaluation

A second "idea" of the course is to create museum type exhibits in the classroom/school to be used as authentic learning products and instructional tools. Teachers read articles/materials on exhibiting strategies (Bay, Whitmore, and O'Toole [date unknown]; Warren, 1972; Ontario Museum, 1979; Szekely, 1988) and discuss adaptations for their own classrooms/schools.

The third step of "idea finding" is to provide advance organizers for each of the museums to be visited during the course. The selection of the museums (see Appendix A - Course Syllabus) to be visited during the course is based on providing a diversity of types of museums (subject area(s) and educational styles & resources). Arrangements are made with museum educators several weeks/months in advance. The visits are generally designed to give teachers an opportunity to talk with museum educators about their respective resources and optional methods of using them and, in some cases, to experience the use of those resources and procedures. Those experiences range from guided tours; presentations of resource materials available including audio-visual materials, kits, making video tapes; and methods for acquiring resources (borrow, rent & purchase), information about teacher education and pupil learning opportunities (independent study, small group projects and class projects); involvement in programs planned for school pupils; and the simulated activities planned by the instructor. By design, the instructor limits the amount of time scheduled for teachers to become familiar with and explore each museum to encourage more extensive exploration on their own curriculum planning time.

Course Products

The "Solution Finding" stage is facilitated by the course assignments (see Appendix A - Syllabus) to:

1) develop an annotated bibliography "Museum Idea Log" on each museum visited.(see example - Appendix B);

2) develop one "Learning Activity" that will be integrated into a current unit (see example - Appendix C); and

3) develop an "Exhibit Plan and related Integrated Learning Activity" to supplement current curriculum (see guidelines in syllabus - Appendix A).

*A rationale for the components of each product is required, as well.

Teachers are given the guidelines for the above assignments, as well as examples of each, and they discuss how each of these solution strategies will help them solve the class goal before beginning the process and throughout the rest of the course. At least one discovery activity is simulated during the course using one or more of the museums visited (see examples - Appendix C and D).

Visits to museums then commence with periodic reflection sessions facilitated to share information about respective museums, brainstorm for curricular/instructional ideas, and consider logistical/instructional problems and solutions. Teachers are asked to make copies of their assignments for each participant in the course, helping each to develop a museum resource portfolio.

Course Evaluation

The "Acceptance Finding" stage in this course provides a few implications for teacher education? Gardner (1991) maintains that

museums provide more dynamic and engaging environments for giving students opportunities to develop and refine emerging understandings in meaningful contexts. Those are constructivist/post-modern opportunities. When teachers are the students in such contexts, they experience the integration and application of several current theories and research findings about learning and instruction. Recent teacher evaluations (acceptance finding) of the course included some of the following statements:

A. Most helpful aspects -

1) Self-Discovery; made me change my ideas of teaching
2) I was totally unaware of the wealth of instructional and personal education that I am surrounded with; I have signed up (at two museums) to participate in their inspiring activities throughout the coming year
3) New ideas, sharing info, discussions with directors of museums
4) Guided us in the direction of using the museums in integrated areas; letting us word in cooperative groups
5) Opportunity to ask specific questions about your interests or needs for your class situation
6) Problem solving strategy techniques; Opening doors to new ideas to us with museums; getting my name on mailing lists for info regarding teacher workshops & classes
7) Open-ended approach - non-judgemental approach

B Aspects needing change -

1) Consolidate course into 1 week - full days - 8-5
2) More time at Springfield; less theoretical discussions, more practical application
3) Visit library museums also; things were a bit vague at times
4) Write out some of the advanced organizers so we can read them, and we don't have to spend class time getting the information
5) I felt rushed through most of the museums. I know it would extend the length of the course , but I felt I could absorb more information if it wasn't so concentrated.
6) Maps to locations would be helpful

A second form of feedback/evaluation was provided through a pre-post questionnaire about their instructional strategy experiences/ preferences, their prior usage of museum resources and their plans for using them after the course. This group of fifteen elementary, junior high school, and special education teachers at the beginning of the course said the instructional strategies they had most often experienced in undergraduate and graduate teacher education courses and those they most often used were in the following rank order:

EXPERIENCED	USED
1) Lecture	1) Lecture
2) Whole group discussion	2) Whole group discussion
3) Recitation*	3) Recitation*
4) Small group discussion*	4) Inductive/Deductive Thinking*
	5) Recitation

*Tied rankings

Reflections

Prior to the course, more than half of teachers said they had not used any museum resources in their teaching during the last two years. After the course, all of the teachers said they would use one to five museums during the coming year with most saying they would use two or three. Prior to the course, the only method used by those using museum resources was field trips as an extension of curriculum topics/units and for an end of the year class trip. After the course, most of the teachers planned to use field trips, nearly half planned to use museum materials, and a few wanted to take teacher workshops at museums and wanted to invite museum personnel

to present in their school/classroom. This particular feedback indicated that some teachers planned to use the resources in a combination of ways.

After the course, teachers said that they also wanted to tie the resources to units/topics; however, they added that they wanted to provide hands-on experiences and direct experiences/exposure that would help students remember, create interest, develop skills through active learning. They planned to use discovery learning, peer teaching, more self-directed activities, such as experimental activities, hand-on activities, scavenger hunts, panels, skits, and logs, as they used the above resources. They aid they wanted to focus on gaining students point of view and determine what is important to them, help them learn how to look at pictures, and ask questions. While quizzes, writing about the experience and what was learned, language experience charts and a, finding and charting answers, small group activity were used prior to the course to evaluate students, a few of those using those resources prior to the course said they had not used student evaluation. After the course, most of these teachers said they planned to use student self-evaluation, including: peer evaluation, group discussion evaluating content and answers to initial questions, student selected projects, exhibits, written reports, and activity sheets such as locating and identifying, games, bulletin boards, and teacher observations and checklists.

The evaluation statements and post questionnaire feedback indicate that teacher instructional awareness and preferences had expanded beyond the mostly didactic instructional strategies (lecture, drill & practice, recitation, and whole group discussion) preferred at the beginning of the course. They now include more constructivist ("students' point of view"), post-modern ("to show importance;" "gain a greater understanding"), and

inquiry ("hands-on"; "locating and identifying") and simulation ("skits"; "exhibits") strategies. While the presenter believes that this type of course (other community resources could be used) can serve as a catalyst for bringing theory and practice together, he also recognizes that further investigation is needed to determine if teachers actually use these resources, instructional strategies, and evaluation strategies. The above feedback also suggests that research is needed to determine if this type of hands-on/experiential course actually addresses students' needs (the second part of "Acceptance Finding") and the teacher education problems cited above: producing teachers with limited instructional strategy repertoires (Goodlad) due to a lack of modeling (Stover), and fragmentation (Carpenter).

The presenter also recognizes that this is a course for inservice teachers, not preservice teachers. It seems to him that there are implications for such experiential/field based preservice teacher education courses; actually, for such a restructured teacher education program. He also believes that they would be most effective if collaboratively planned, taught, with inservice teachers as suggested by Goodlad.

The remainder of this session will be used for participants' questions and to discuss possible implications for their respective preservice and inservice teacher education needs/programs.

Integrating Museum Resources
into Instruction

Bibliography

Ault, Charles R., Jr. "The Museum as Science Teacher," SCIENCE AND CHILDREN, November/December, 1987, pp. 8-11.

Barnsford, J.D. & Sherwood, R.S., & Hasselbring, T., " The Video Revolution and Its Effects on Development: Some Initial Thoughts. In G. Foreman & P. Pufall (eds.), CONSTRUCTIVISM IN THE COMPUTER AGE (pp.173--201). Hillsdale, NJ: Erlbaum, 1988, as cited by The Cognition and Technology Group at Vanderbilt, "Anchored Instruction and Its Relationship to Situated Cognition," EDUCATIONAL RESEARCHER, August- September, 1990, p. 3.

Bay, Ann, Whitmore, Susan, and O'Toole, Dennis, "The Museum Idea," (Slide-Tape presentation and Teacher's Guide), Washington, D.C.: Office of Elementary and Secondary Education, Smithsonian Institution, (date unknown).

Bennett, Lloyd M. "A Study of the Comparison of Two Instructional Methods, the Experimental-Field Method and the Traditional Classroom Method, Involving Science Content in Ecology for the Seventh Grade," SCIENCE EDUCATION, December, 1965, pp. 453-468.

Benz, Grace. "An Experimental Evaluation of Field Trips for Achieving Informational Gains in a Unit on Earth Science in Four Ninth Grade Classes," SCIENCE EDUCATION, February, 1962, pp. 43-49.

Bloom, B.S., ed. TAXONOMY OF EDUCATIONAL OBJECTIVES - HANDBOOK I: COGNITIVE DOMAIN. New York:David McKay Co., Inc., 1956.

Bresher, Catherine. "How to Make the Most of a Museum Trip," EARLY YEARS/K-8, March, 1985, pp.28-29.

Burcaw, G. Ellis. INTRODUCTION TO MUSEUM WORK, AASLH:NASHVILLE,TN, 1975.

Cannella, G. CONSTRUCTIVIST APPROACHES TO LEARNING: NEW DIRECTIONS FOR LEARNING STYLE THEORISTS. Paper presented at the 72nd annual meeting of the Association of Teacher Educators, Orlando, FL, February, 1992.

Carpenter, R. "Teaching as Problem Solving." In Charles, R. & Silver, E. (Eds.), THE TEACHING AND ASSESSING OF MATHEMATICAL PROBLEM SOLVING, Reston,VA: National Council for Teaching Mathematics, 1988, pp. 187-202.

Copenhaver, R. "The Consistency of Learning Styles," THE TEACHER EDUCATOR, VOL 15, NO. 3, 1979-80, pp. 2-6.

Copenhaver, R. & Ligon, J. PRESERVICE AND INSERVICE TEACHERS' INSTRUCTIONAL STRATEGIES PREFERENCES: IMPLICATIONS FOR COLLABORATIVE TEACHER EDUCATION. Paper presented at the Illinois Association of Teacher Education Fall Conference, Effingham, IL, October, 1991.

Cross, K., ACCENT ON LEARNING, San Francisco, CA:Jossey-Bass, 1976.

Cuban, Larry, HOW TEACHERS TAUGHT: CONSTANCY AND CHANGE IN AMERICAN CLASSROOMS, 1890-1980, New York: Longman, 1984.

Danilov, Victor J. "Museums as Educational Partners," CHILDHOOD EDUCATION, April/May, 1976, pp.306-311.

Doane, Catherine, " Global Issues in 6th Grade? Yes!," EDUCATION LEADERSHIP, Vol. 50, No. 7, 1993, pp.19-21.

Doll, W. Jr., A POST MODERN PERSPECTIVE ON CURRICULUM, New York: Teachers College, Columbia University, 1993.

Drucker, P., THE AGE OF DISCONTINUITY:GUIDELINES TO OUR CHANGING SOCIETY, New Brunswick: Transaction Publishers, 1968/92.

Finson, Kevin D. and Larry G. Enochs. "Student Attitudes Toward Science-Technology-Society Resulting from Visitation to a Science-Technology Museum," JOURNAL OF RESEARCH IN SCIENCE TEACHING, Vol.24, No. 7, 1987, pp. 593-609.

Gagne, R.M., THE CONDITIONS OF LEARNING. New York:Holt, Rinehart and Winston, Inc., 1970.

Gardner, H., FRAMES OF MIND: THE THEORY OF MULTIPLE INTELLIGENCES, Basic Books-Harper Collins Pub., 1985.

_____, THE UNSCHOOLED MIND: HOW CHILDREN THINK AND HOW SCHOOLS SHOULD TEACH, Basic Books,- Harper Collins Pub., 1991.

Goodlad, J. A , PLACE CALLED SCHOOL. New York: McGraw-Hill, 1984.

_____, TEACHERS FOR OUR NATION'S SCHOOLS. San Francisco: Jossey-Bass, 1990.

Gregorc, A., "Transaction Ability Inventory," Columbia, CT:Gregorc Associates, Inc., 1978.

_____, INSIDE STYLES: BEYOND THE BASICS, Columbia, CT:Gregorc Associates, Inc., 1985.

HANDS ON: SETTING UP A DISCOVERY ROOM IN YOUR MUSEUM OR SCHOOL, Ontario, Canada:Royal Ontario Museum, 1979.

Harrison, M. LEARNING OUT OF SCHOOL. London:Educational Supply Association, 1954.

Harvey, Helen W. "An Experimental Study of the Effect of Field Trips upon the Development of Scientific Attitudes in a Ninth Grade General Science Class," SCIENCE EDUCATION, DECEMBER, 1951, pp.242-248.

Hoetker, J. & Ahlbrand, W. P. Jr. "The persistence of the recitation," AMERICAN EDUCATIONAL RESEARCH JOURNAL, 6, 1969, pp. 145-167.

Hunt, D., MATCHING MODELS IN EDUCATION: THE COORDINATION OF TEACHING METHODS WITH STUDENT CHARACTER, Toronto: Ontario Institute for Studies in Education, 1974.

Jensen, Nina, ed. "Children, Teenagers and Adults in Museums: A Developmental Perspective," MUSEUM NEWS, May/June, 1982, pp.25-30.

Joyce, B.R. & Weil, M. MODELS OF TEACHING (3rd ed.).Englewood Cliffs: Prentice-Hall, Inc., 1986.

Kohl, Peggy and Katherine Andrews (panel members), "Museum Audiences: The Educator's Perspective," Bank Street College Panel on Museum Education (audio tape), Shawnee Mission, KA: Vanguard Systems, Inc., 1979.

Koran, John J., Jr. and S. Dennis Baker. "Evaluating Effectiveness of Field Experiences," WHAT RESEARCH SAYS TO THE SCIENCE EDUCATOR, Vol.2 ed. by Mary Budd. ERIC Information Analysis Center for Science, Mathematics and Environmental Education. Columbus, Ohio:National Science Teachers Association, Washington, D.C., 1979, 130pp. (ED 166057).

Krathwohl, D.R , B.S. Bloom and B.B. Masia. TAXONOMY OF EDUCATIONAL OBJECTIVES- HANDBOOK II; AFFECTIVE DOMAIN. New York:David McKay Co., Inc., 1964.

Lacey, Thomas J. and Julie Agar. "Bringing Teachers and Museums Together," MUSEUM NEWS, Vol. 58, No. 4, 1980, PP. 50-54.

LaRocca, Charles, "Civil War Reenactments-'A Real and Complete Image,'" EDUCATION LEADERSHIP, Vol. 50, No. 7, 1993, pp. 42-44.

Larrabee, E., ed. MUSEUMS AND EDUCATION: FINAL REPORT.Washington, D.C..Smithsonian Institution Press, 1967.

Lehman, Susan Nichols and Kathryn Igoe, eds. MUSEUM SCHOOL PARTNERSHIPS: PLANS & PROGRAMS, SOURCEBOOK #4, Washington, D.C.: American Association of Museums, 1981.

Letteri, C. A. "Cognitive Style: Implications for Curriculum," CURRICULUM THEORY, Edited by Alex Molnar and John A. Zaborik, Washington, D.C.: Association for Supervision and Development, 1977.
Linder, Bertram L. "Museum-School Partnerships---A Resource for Principals," NASSP BULLETIN, December, 1987, pp. 122-124.

Lorti, D. (1975). SCHOOLTEACHER: A SOCIOLOGICAL STUDY. Chicago: University of Chicago Press, 1975, as cited in Kennedy, M. AN AGENDA FOR RESEARCH ON TEACHER LEARNING.A NCRTL special report. East Lansing, MI: Michigan State University, 1991, p.7.

MUSEUM EDUCATTION RESEARCH: FUTURE DIRECTIONS, A Report by the Museum Education Roundtable, Rockville, MD, ERIC document (ED 289749), 1986, 25 p.

MUSEUM STUDIES; A CURRICULUM GUIDE FOR UNIVERSITY AND MUSEUMS, A report by the Museum Studies Curriculum Committee of the AAM, Washington D.C., 1973.

Newsom, Barbara Y. "The Museum Educator and the Education of Teachers," TEACHERS COLLEGE RECORD, Vol. 79, February, 1978, pp.485-97.

Novak, J.D. "Understanding the Learning Process and Effectiveness of Teaching Methods in Classroom, Laboratory, and Field," SCIENCE EDUCATION, Vol. 60, No. 4, 1976, pp. 493-512.

Parnes, S., R. Noller and A. Biondi, GUIDE TO CREATIVE ACTION: REVISED EDITION OF CREATIVE BEHAVIOR GUIDEBOOK, New York: Charles Scribner's Sones, 1977.

Paul, R. W., "Critical Thinking and Language Arts," TEACHING K-8, April, 1989, pp. 62-63.

Pillips, Susan J. and William Endslow. "On a Treasure Hunt," SCHOOL ARTS, January, 1981, pp. 11-14.

Posner, G.J , Strike, K.A., Hewson, P. W., and Gertzog, W.A.,"Accommodation of a scientific conception: Toward a theory of conceptual change," Science Education, 66, 1982, pp. 211-227.

Reece, B. Berns, R.. and Heath, B., "Behavior Modeling - a Strategy for Improving Teacher Competence in Vocational Education," JOURNAL OF VOCATIONAL AND TECHNICAL EDUCATION, Vol. 3, No. 1, 1986, p.36, cited in Stover, L., "Modeling a Student-Centered Approach in the Secondary Teacher Education Program," ACTION IN TEACHER EDUCATION, Vol. 12, No. 1, 1990, pp. 35-42.

Screven, C.C. THE MEASUREMENT AND FACILITATION OF LEARNING IN THE MUSEUM ENVIRONMENT: AN EXPERIMENTAL ANALYSIS, Washington, D.C.: Smithsonian Institution Press, 1974.

Shettel, H.W. "Exhibits: Art Form or Educational Medium," MUSEUM NEWS, Vol. 52, No.1, 1973, pp.493-512.

Speltz, C. and Shaugnessy, M., "Human Interaction in Education: The Museum as an Experiential Learning Center, ERIC document (ED 328493), 1990, 22 p.

Stover, L., "Modeling a Student-Centered Approach in the Secondary Teacher Education Program," ACTION IN TEACHER EDUCATION,Vol. 12, No. 1, 1990, pp. 35-42.

Sykes, G, Judge, H. & Devaney, H., THE NEEDS OF CHILDREN AND THE EDUCATION OF EDUCATORS: A BACKGROUND PAPER FOR TOMORROW'S SCHOOLS OF EDUCATION. East Lansing, MI: The Holmes Group, 1992.

Szekely, George. "The Art Exhibit as a Teaching Tool," ART EDUCATION, January, 1988, PP.9-17.

Warren, Jefferson T. EXHIBIT METHODS, New York:Sterling Publishing Co., Inc., 1972.

Wigginton, E. (speaker), "Developing America's Talent - The Link With Assessment," audio-taped at the Association of Supervision and Curriculum Development, PATHWAYS TOWARD A MORE THOUGHTFUL ASSESSMENT: A MINI-CONFERENCE, San Diego, CA, 1992.

Williams, Jackie and Terry Deal Reynolds, "Courting Controversy: How to Build Interdisciplinary Units," EDUCATIONAL LEADERSHIP, Vol. 50, No. 7, 1993, pp. 13-15.

"Winding up with a Winning Inning," INSTRUCTOR, May, 1978, pp. 51-57.

Zeaman, D. and B.J. House. "The Role of Attention in Retardate Discrimination Learning," in N. R. Ellis, ed. HANDBOOK OF MENTAL DEFICIENCY, New York:McGraw Hill, Inc., 1963.

Zetterberg, H.L. MUSEUMS AND ADULT EDUCATION. New York: Evelyn, Adams & McKay, 1968.

Appendix A

INTEGRATING MUSEUM RESOURCES
INTO INSTRUCTION

C&I 498n
Summer 19

Dr. Ron Copenhaver
419 Hyde Park
Mt. Vernon, IL 62864
(618)242-3454

PURPOSE. The focus of this workshop is two-fold: integrating museum resources into classroom instruction and preparing school/classroom exhibits and related learning activities. The purpose of the workshop is to provide participants with the opportunity to develop curator skills, exhibiting and discovery instructional materials and procedures. While attention is given to curriculum and instruction theory, the major thrust of this workshop focuses on how classroom teachers and museum personnel can work together to provide enrichment learning experiences for students

OBJECTIVES - Each participant will

1. identify the roles museums can play as educational resources,
2. develop a variety of activity ideas in which to engage pupils as they encounter museum resources,
3. develop lessons that integrate museum resources into her/his classroom curricula,
4. identify ways that teachers and museum personnel can work together to produce instructional materials and activities,
5. experiment with a variety of museum resource learning activities including discovery activities,
6. explain how to identify relevant instructional artifacts,
7. explain how and where to collect relevant instructional artifacts,
8. design a museum exhibit that effectively displays relevant instructional artifacts,
9. develop instructional activities to be used with her/his exhibit, and
10. develop a variety of effective docent methodologies.

PROJECTS: The following projects may be turned in at the end of the course or no later than June 25, 1993. Mail them to me at the above address along with a stamped, self-addressed 9" x 12" envelope: (make copies of all projects for each member of the class, as well as for the instructor)

A. Individually maintain a museum idea log, noting (approximately one paragraph for each entry):

1. how you might use each museum's resources for your students (one possible activity for each museum visited and related classroom/curricular topic - BE CREATIVE) and
2. most helpful things to remember when using each resource

B. From the numerous museum encounters experienced during this course, select ONE and develop a LEARNING ACTIVITY explaining how the activity will be integrated into a unit of study, topic, theme or skill development area. For the activity, include the following items and a brief rationale (explain why each was selected/developed and how each will supplement the unit and enhance your students' learning) each for items 3-9

1. Title of unit, topic, theme or skill development area being studied;
2. Unit, topic, theme or skill development area objectives;
3. Unit, topic, theme or skill development area objective(s) to be met through the use of a museum resource; RATIONALE
4. Museum resource(s) to be used; RATIONALE:
5. Manner in which museum resource is to be used, i.e., field trip, speaker, resource materials, etc.; RATIONALE.
6. Advance organizers to be used; RATIONALE.
7. Learning activity(ies) pupils will be engaged in while using the museum resource(s); RATIONALE:
8. Follow up activity(ies); and RATIONALE:
9. Evaluation criteria and procedures. RATIONALE.

C. In a group of no more than three members, develop an integrated learning EXHIBIT PLAN and a related INTEGRATED LEARNING ACTIVITY for all students involved, including the following items with a rationale for each (state why each will appropriately supplement your curriculum and effectively enhance your students' learning):

1. Audience - describe audience by age, abilities, learning needs, etc.
2. Title and topic of exhibit; RATIONALE:
3. Exhibit objectives - consider audience and desired message; RATIONALE
4. Limitations - include space (type and dimensions), items to be exhibited, time allotted and cost; RATIONALE:
5. Design - include arrangement (provide sketch and/or floor plan), interpretation methods, and special effects, i.e. lighting, sound, smells and/or motion; RATIONALE:
6. Learning Activities (1-3) - include objectives, active pupil engagement opportunities, and suggested follow-up activities for each; RATIONALE: and
7. Exhibit and learning activity(ies) evaluation criteria and procedures. RATIONALE.

COSTS: While there is no textbook to purchase, participants will be asked to make copies of all projects for each class member and the instructor, arrange car pools to and from museums, and when visiting museums, may need/want to purchase lunch

SCHEDULE

Car pooling may be arranged for each visit, and approximately one hour will be made available for lunch on appropriate days.

Course Dates/Time: June 7-18, 1993 (Monday-Friday):

6/7 -	8:30 a.m.- 1:00 p.m.	Class Introduction in [illegible] Board Room)
6/8 -	9:30 a.m.-11:30 a.m.	St. Louis History Museum &
	12:30 a.m - 2:30 p.m.	Cahokia Mounds
6/9 -	9:00 a.m.- 1:00 p.m.	Lincoln Sites, Springfield & New Salem
6/10 -	8:30 a.m.-10:30 a.m.	Class Session in [illegible] board Room) &
	11:00 a.m.- 1:00 p.m.	St. Clair County Historical Society
6/11 -	9:00 a.m.-11:00 a.m.	St. Louis Zoo &
	12:00 a.m - 2:00 p.m.	St. Louis Art Museum
6/14 -	8:00 a.m.- 9:00 a.m.	Class Session in [illegible] Board Room) &
	9:30 a.m.-12:30 p.m.	St. Louis Science Center
6/15 -	9:00 a.m.- 1:00 p.m.	Missouri Botanical Gardens, St. Louis, MO &
6/16 -	9:00 a.m.- 1:00 p.m.	Life in St. Louis Discovery Activity
6/17 -	8:30 a.m.- 1:00 p.m.	Class Session in [illegible] School)
6/18 -	8:30 a.m.- 1:00 p.m.	Class Session in [illegible] School)

Appendix B

Sample Museum Log Entry

Museum: Children's Museum of Indianapolis, 3000 N. Meridian Street, P.O. Box 3000, Indianapolis, IN 46206; 317/924-5431
Contact Person: Mary Batrich, School Services Coordinator
Admission Fee: $1.00 per student for school groups
Supervision: 1 adult per 10 students
Idea: Using the "Passport to the World" gallery as a resource, students in 7th grade social studies class in groups of three will complete an interdisciplinary project including a travel itinerary, budget, and a short story read or play performed about their trip to one foreign country. The story or play must include accurate cultural data.

Appendix C

Ingram's Log Cabin Village

1. Title of unit: Research Skills

2. Unit objectives:

   a. Pupils will be able to find sources of information using the card catalog.

   b. Pupils will be able to find sources of information using the table of contents and index of a book.

   c. Pupils will be able to use the Reader's Guide to find sources of information.

   d. Pupils will be able to use documents to answer research questions.

   e. Pupils will be able to use interviewing skills to answer research questions.

   f. Pupils will be able to use objects to answer research questions.

   g. Pupils will be able to draw logical conclusions from their research and support them with evidence.

   h. Pupils will be able to make a clear statement about their research findings.

3. Unit objectives to be met through the use of a museum resource: Objectives e., f., and g. will be met using a museum resource.

   Rationale: A museum will have objects for pupils to study, personnel to interview, and displays helping pupils to organize their thinking.

4. Museum resources to be used: Ingram's Log Cabin Village is the museum resource to be used.

   Rationale: Mrs. Ingram, who will answer questions, has arranged several historical items in displays for inspection and reflection.

5. Manner in which the resource is to be used: The class will take a field trip to the "Village".

   Rationale: Mrs. Ingram does not send objects to schools, and the arrangement of the displays will help students see the relationship of the objects.

6. Advance organizers to be used with pupils: After working in class and in a library on objectives a. - e. and g. and h., the pupils will be told about objective f. A toaster, a typewriter, and a pair of pliers will be displayed in class. Pupils will be asked to identify the functions of each and specific evidence supporting their conclusion. They will be asked to speculate about what related objects would be in the same working areas. After the above discussion, the pupils would be told that they were going on a field trip to Ingram's. The setting would be described, the objectives of the trip and activities during the trip outlined, and expected pupil behavior discussed. Pupils will be told to take pencils and notebooks.

   Rationale: By using familiar objectives pupils can practice determining the function of objects by identifying their specific traits and relationship to other objects in the area. This practice should help them do the same when encountering unfamiliar objects and settings.

7. Learning Activities pupils will be engaged in while using the museum resources: The class will be divided into assigned groups of three pupils each. The groups will be given one hour and thirty minutes to complete the attached "Information Scavenger Hunt." During the "hunt" the teacher will monitor the groups progress. After the "hunt", the class will gather at the picnic tables next to the Inn to discuss their findings and ask Mrs. Ingram questions. The teachers role will be to raise questions to encourage pupils to test their findings.

   Rationale: By working in groups pupils can learn the importance of cooperation and using complementary skills. The questionnaire is designed to encourage pupils to reflect on what they see. The purpose of the

discussion is to encourage pupils to test their own and others conclusions about the objects they have seen.

8. Follow up procedures:
   a. Using newsprint the class will list their conclusions about the objects observed.

   b. Each pupil will write an essay using the list of conclusions.

   c. The class will list the different sources of information discussed during the unit and discuss the importance of using all of them.

   Rationale: After additional reflection time, the pupils will have an opportunity to review and adjust initial conclusions, use of those conclusions, and put into perspective the use of objects when conducting research.

9. Evaluation criteria and procedures to be used: The advance organizer activities, the field trip, and follow-up activities will be judged a success if all pupils participate in each of the discussions. The pupils will be expected to achieve 80 percent competence on a practical skills test on objectives e. and f. Their essays will be evaluated on the basis of their use of logic and evidence, clarity, grammatical correctness, and neatness.

   Rationale: The above evaluation criteria and procedures were selected to determine how well the pupils can apply the skills. They are also designed to determine pupil enthusiasm and ability to use their research findings coherently.

Ingram's Log Cabin Village
Information Scavenger Hunt

Directions: You will find the answers to the following questions in the village of cabins. Support your answers with evidence. Remember our discussion on observing objects and their relationship with other objects found in the same area. When you have completed 1-19 go to the Stage Coach Stop to find the answer to 20.

1. In front of the fireplace in some of the cabins, you will see a board with a "V" cut out of one end. For what is it used, and why is it placed in front of the fireplace?

2. What type of work goes on in the Anderson cabin?

3. Which cabin may have been the home of a very short person?

4. What would lead you to believe that there used to be stairways inside many of these cabins?

5. How would you know that these cabins were the homes of people with German backgrounds if you were not told that on one of the cabin inscriptions?

6. What held the cabins together if no nails were used?

7. Why do you believe the Meadows's cabin is so small?

8. In the Robb cabin, you will see a pan with a lid attached to a long pole leaning against a wall. For what is it used?

9. If you were not told so, why would you guess that Abraham Lincoln might have visited the Davison cabin?

10. What type of livestock probably was kept in the barn behind the Strullemeyer's cabin?

11. Why were the cabins whitewashed on the inside?

12. What is in the Listers' cabin that would lead you to believe a doctor lived there?

13. What evidence did you find indicated that at least two of the families who lived in these cabins knew each other?

14. Where do the inhabitants get most of their clothing?

15. After looking in the Millican's cabin, describe the work lifestyle of the people who lived in the 1840's.

16. What type of today's housing has something in common with the Strullemeyer's cabin?

17. How were the Robbs and Doolens like middle class Americans

18. How do you know that children lived in most of the cabins?

19. Why were bowls with lids placed under the beds?

20. How was the Stage Coach Stop different from todays hotels and motels?

Appendix D

Field Trip
to
Springfield & New Salem, IL

Objectives:

Using historical sites:
1) discover what helped shape the beliefs of Abraham Lincoln and why he held them,
2) create a variety of ways your students might present/ articulate the above discoveries,
3) identify which museum resources were used, and
4) determine what logistical/instructional considerations/ preparations are critical when planning to use the above museum resources.

Process:

A. In teams (2 or 3 members each), explore the Lincoln historical sites in Springfield and New Salem, IL gathering information about Lincoln's:

1) young adulthood/lifestyle/friends
2) hometowns/homes,
3) later adult life/lifestyle/friends
4) work/professional life/associates
5) politics,
6) wife and children, and
7) other endeavors/activities

B. The day before the field trip, teams will select/divide sites to investigate (some overlap may occur - all will go to New Salem)

C. Teams will collect data from 9:00 - 11:00 a.m. in Springfield and from 11:30 - 12:30 p.m. in New Salem

D. While eating lunch at the New Salem site from 12:30 - 1:30 p.m., teams will draw conclusions and summarize their findings based on the above objectives

E. Teams will share their conclusions and findings in class on Thursday, 6/10/93 and compile a class consensus statement and idea list

Life in St.Louis
a
Discovery Activity

Objectives

Using St. Louis Museums

1) discover what helped shape current lifestyles in St. Louis,
2) design a plan for a museum exhibit titled, "St. Louis 2023. Influences of the Past",
3) identify which museum resources were used,
4) describe how you might involve your students in an activity to achieve objectives 1) & 2) above, and
5) determine what logistical/instructional considerations/ preparations are critical when planning to use the above resources in the manner suggested in 4) above.

Process

A. In teams (2 or 3 members each), explore St. Louis museums to gather information about life in St. Louis, including.

1) housing
2) transportation
3) career options
4) education
5) government
6) religion
7) recreation
8) health
9) cultural diversity
10) geography
11) crime
12) literature/the arts
13) other

B. Two days before the discovery process begins, the teams will select/ divide museums to investigate (some overlap will occur due to planned class visits to a few St. Louis museums) and plan an investigation and consultation schedule

C. Teams will collect data, draw conclusions, summarize findings, and brainstorm for "2023" exhibit ideas on Wednesday, June 16, 1993

D. Teams will finalize their "2023" exhibit plans and share them with the class on Thursday, June 18, 1993